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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,914	02/25/2004	Akira Nakano	9281-4793	2084
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EXAMINER ALEJANDRO MULERO, LUZ L				
ART UNIT		PAPER NUMBER		
1716				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/786,914

Applicant(s)

NAKANO ET AL.

Examiner

Luz L. Alejandro

Art Unit

1716

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04/06/10.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/06/10 has been entered.

Election/Restrictions

Newly submitted claim 24 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: previously filed and examined claims are directed to the embodiment in which a plurality of metal plates are used to AC short the chamber and the shield (for example, fig. 2). Newly added claim 24 is directed to the embodiment in which a cylindrical mesh is used to AC short the chamber and the shield (figs. 3A and 3B).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 24 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Reissue Applications

Claims 1-23 are rejected under 35 U.S.C. 251 as being based upon new matter added to the patent for which reissue is sought. The added material which is not supported by the prior patent is as follows:

In claim 1-lines 13-15, claim 13-lines 17-20, and claim 23-lines 20-23, the specification, as originally filed, does not provide support for the limitation of "the plurality of metal plates are configured to pass high frequency current so that the plasma treatment equipment have a small susceptance impedance with low frequency dependency and high power consumption efficiency".

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification, as originally filed, does not provide support for "so that the plasma treatment equipment have a small susceptance impedance with low frequency dependency and high power consumption efficiency" in the newly added limitation of "the plurality of metal plates are configured to pass high

frequency current so that the plasma treatment equipment have a small susceptance impedance with low frequency dependency and high power consumption efficiency", as required by claim 1-lines 13-15, claim 13-lines 17-20, and claim 23-lines 20-23.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "metal plates" in the claims (for example claim 1) is not clear. It is not understood if applicant is trying to claim a specific shape for the metal elements and if so which shape the applicant is trying to claim. The word plate generally refers to a flat surface but it appears from the specification of the instant application, in col. 6-line 25, that the metal plates are elastic springs. Clarification and/or correction is required.

The terms "small", "low" and "high" in claim 1, lines 14, 14 and 15, respectively, are relative terms which renders the claim indefinite. The term "small" and "high" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The terms "small", "low" and "high" in claim 13, lines 18, 19 and 19, respectively, are relative terms which renders the claim indefinite. The term "small" and "high" are not defined by the claim, the specification does not provide a standard for ascertaining

the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention..

The terms "small" and "high" in claim 23, lines 21, 22 and 22, respectively, are relative terms which renders the claim indefinite. The term "small" and "high" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-23 are rejected under 35 U.S.C. 103(a) as being obvious over the Admitted Prior Art (APA) in view of Kawakami et al., JP 06-333879 or Sakai et al., JP 10-032171 or Kagatsume et al., US 4,908,095.

APA shows the invention substantially as claimed including a plasma treatment equipment having a chamber 60 for performing plasma treatment, the chamber having a bottom wall and a side wall 10, the plasma treatment equipment comprising: a plasma excitation electrode 4 to which a power for plasma excitation is supplied, the plasma excitation electrode being provided in the chamber; and a susceptor electrode 8 that is opposed to the plasma excitation electrode provided in the chamber; the susceptor electrode being an electrode into which a high frequency electric current based on the power for plasma excitation flows after passing through a plasma space; the susceptor electrode disposed within the plasma chamber and comprising a generally planar shaped electrode portion oriented substantially parallel to the bottom wall of the plasma chamber and further comprising a generally planar shaped shield 12 disposed adjacent to the electrode portion, the shield being located between the electrode portion and the bottom wall of the plasma chamber; the susceptor electrode and the shield of the susceptor electrode have the same DC potential as that of a chamber wall 10 of the chamber, wherein the susceptor electrode is connected to the chamber wall 10 of the chamber by a bellows 11 provided in the chamber (see, for example, figs. 12-16, and their descriptions).

APA does not expressly disclose that the chamber wall of the chamber and the susceptor electrode/shield are AC shorted to each other by a plurality of metal plates.

Kawakami et al. discloses a plasma treatment equipment comprising: a plasma chamber wall, a susceptor electrode 8 disposed within the plasma chamber and comprising a shield 12 disposed adjacent to the electrode portion; and wherein the bottom wall of the plasma chamber and the susceptor electrode/shield are AC shorted to each other by a plurality of metal elements 14 at a plurality of short points of the chamber wall which are disposed approximately symmetrically with respect to a center of the shield of the susceptor electrode (see, for example, figs 1-6 and their descriptions). Additionally, Sakai et al. discloses a plasma treatment equipment comprising: a plasma chamber wall; a susceptor electrode (1/1a, 1b, 11) disposed within the plasma, wherein the bottom wall of the plasma chamber and the susceptor electrode are AC shorted to each other by a plurality of metal elements 12 at a plurality of short points of the chamber wall which are disposed approximately symmetrically with respect to a center of the susceptor electrode (see, for example, figs. 6-10 and their descriptions). Furthermore, Kagatsume et al. discloses a plasma treatment equipment comprising: a plasma chamber wall; a susceptor electrode 20 disposed within the plasma, wherein the bottom wall of the plasma chamber and the susceptor electrode are AC shorted to each other by a plurality of metal elements 27 at a plurality of short points of the chamber wall which are disposed approximately symmetrically with respect to a center of the susceptor electrode (see, for example, fig. 5 and its description). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of the APA as to further comprise a plurality of metal plates connected between the susceptor electrode/shield and the

chamber wall in order to AC short the susceptor electrode/shield and the chamber wall from each other and thereby optimize the apparatus and the processes performed within by effectively preventing discharge abnormalities and external noises.

Additionally, note that in the apparatus of the admitted prior art modified by Kawakami et al. or Sakai et al. or Kagatsume et al., the plurality of metal elements will pass high frequency current as claimed. Moreover, regarding the metal elements being metal plates, a prima facie case of obviousness exists because the particular shape of the metal elements is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed metal element is significant.

Furthermore and with respect to claims 2-5, 11-12, 15-16 and 20-22, APA, Kawakami et al., Sakai et al. and Kagatsume et al. do not expressly disclose that the susceptor electrode and the chamber wall are shorted at a location shorter than 500 mm from a side wall of the chamber wall, and an angle formed between the metal plate and the bottom wall is less than 45 degrees. Concerning the shorting location and the angle between the metal plate and the bottom wall, a prima facie case of obviousness still exists because where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device absent the showing of unexpected results.

Response to Arguments

Applicant's arguments filed 04/06/10 have been fully considered but they are not persuasive. Applicant argues that none of the references disclose the newly added limitation to the independent claims of "the plurality of metal plates are configured to pass high frequency current..." since the disclosure of "a metal element" in the references is not a disclosure of a metal plate configured to pass high frequency current. First, and with respect to the newly added limitation to the independent claims, note that the language of the newly added limitation fails to comply with the written description requirement and renders the claims indefinite, as stated in the above and respective 35 USC 112, first and second paragraph rejections. Furthermore, the examiner respectfully disagree with applicant's argument and kindly points out that as disclose in paragraph 0012 of Kawakami et al., paragraph 0139 of Sakai et al. and col. 5, lines 52-55 of Kagatsume et al., the metal elements of these references are made of stainless steel, cooper and stainless steel, respectively, which clearly are metals that are able to pass high frequency current.

Additionally, regarding the metal elements being metal plates, a prima facie case of obviousness exists because the particular shape of the metal elements is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed metal element is significant. Furthermore, note that arguments of counsel cannot take the place of evidence in the record, and the use of relative terms such as "small", "low" and "high" renders the claim indefinite and does not define the invention over the prior art of

record. Furthermore, and as stated in the above 35 USC 112-second paragraph rejection, the term "metal plates" in the claims is not clear. It is not understood if applicant is trying to claim a specific shape for the metal elements and if so which shape the applicant is trying to claim. The word plate generally refers to a flat surface but it appears from the specification of the instant application, in col. 6-line 25, that the metal plates are elastic springs. Therefore, the shape of the bellows of Kawakami et al. and Kagatsume et al. and especially the coils disclosed by the Sakai et al. references, respectively, would not result in a structure with the opposite effect of Applicant's claimed structure. Even more, the coils of the Sakai et al. reference would have a similar shape as the elastic rings disclosed by the applicant in the specification.

Therefore, for at least these reasons, the 35 USC 103 rejection of the claims using the Kawakami et al., Sakai et al. and Kagatsume et al. references are respectfully maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Luz L. Alejandro/
Primary Examiner, Art Unit 1792

June 14, 2010